Qualitative Research that Confirms the Need to Create Communities in the Aging Society

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Abstract

We are now in the era of a rapidly progressing low birth rate and an aging society. The increasing seriousness of this trend is creating an unavoidable problem for future generations. The image of elderly people that we used to have was of people that needed assistance from surrounding people. However, this concept is changing. In the future, the number of so-called "fit and healthy elderly people" will tend to increase. In such a super-aging society, it is expected to create supportive Information and Communication Technology (ICT) solutions which are relevant to this issue. In order to achieve it, it is essential to define certain issues that derive from the developing needs of elderly with the diversified and complex situation . Below, we define our approach to this task and introduce the impact and effectiveness acquired from repetitive Qualitative Surveys and Field Trials.

Keywords

support for the elderly, community activation, social networking services, revival support for disaster stricken areas

1. Introduction

The C&C Innovation Initiative has already conducted research into the subject of "The Elderly in the Community." In this research we explored the potential needs of the elderly in order for us to define research objectives that will lead to the creation of social values in the super-aging society. The social issues to be addressed in the elderly-care field still remain unclear. In addition, there is still a significant problem to be sorted out before designing an appropriate system based on those proposed issues and conducting relevant experimental trials.

We have conducted various kinds of research and experimentation in order to solve this problem. In doing so we retained our research attitude of being involved in the actual user situation and location, and then we focused on Qualitative Surveys by staying close to elderly people and listening to their views with the aim of really understanding their condition. Subsequently, we conducted Field Trials in Uda city, Nara prefecture in 2010 and 2011 that targeted the local elderly population, and also in Sendai city, Miyagi prefecture from January to February, 2013, by targeting elderly people in temporary housing as a result of the disastrous tsunami.

In the following section, we introduce a brief outline of our Field Trials and then discuss the issues that focused in designing these Field Trials. We report on the impact and effectiveness of our activities mainly in the context of our Qualitative Surveys as a suitable approach to various issues.

2. Field Trials Aiming to Create Local Communities in which Elderly People are Encouraged to Lead Active Lives by Supporting Each Other

2.1 Approaches to Encouraging Healthy Activities

In our first Field Trials, we aimed at encouraging elderly people to go out and about, and to increase their opportunities to meet with other people and make a circle of friends and acquaintances (**Fig. 1**). We conducted this trial in an old town of Uda city, Nara prefecture in January, 2010. Ten local residents participated in this exercise.

We asked each participant to wear a pedometer (with built-in RFID) every day. Meanwhile, we installed at their home a device that could read the pedometer data and provides relevant information, and also a robotic console (PaPeRo) that interfaced with the device. Every time that the device was touched with a pedometer, fresh local information was shown
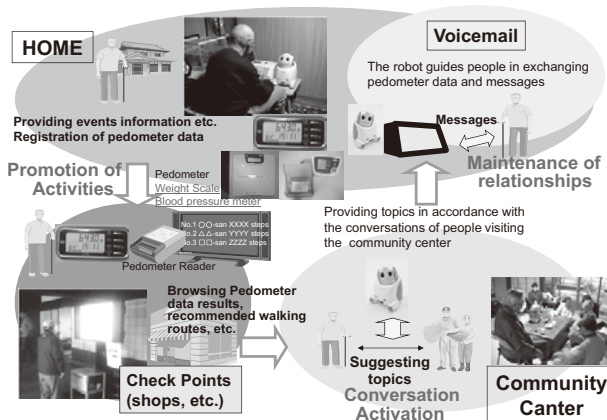
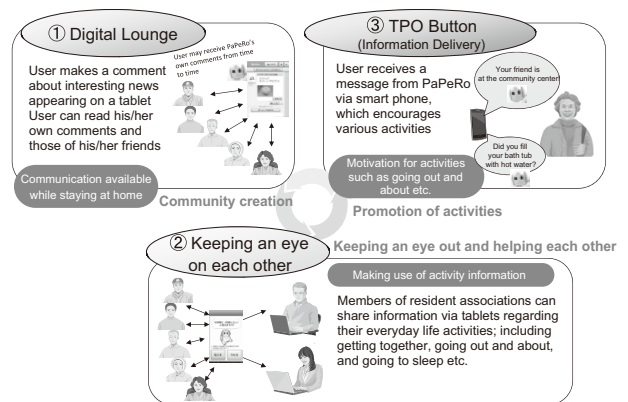Fig. 1 Outline of Field Trial program conducted in Uda, Nara prefecture.

Fig. 2 Outline of the Sendai city experiment arrangement.

on the monitor. PaPeRo also reads out the information by synthesized voice.

We set up five check points in the town, where we installed a pedometer reader and a set of monitor to display relevant information. We recommended participants to arrange their walk to include passing checkpoints on their route. At the Community Center, one of our five check points, we placed a PaPeRo that was able to mediate conversations of people visiting the Center.

In our first trial, we aimed at elderly people who were asked to make a habit of wearing the pedometers continuously for long hours in their daily lives. We also made it easy for elderly people to obtain information by enabling the PaPeRo to start talking with a touch of the pedometer and thereby to take the initiative in interactions.[1), 2)]

In our Field Trials conducted in the next year, 2011, we added a blood pressure monitor and weight scales and made the robot encourage elderly people to use these devices. The recorded data of usage obtained via these devices shows that the pedometer was touched once or twice almost every day. Gauging weight and blood pressure was conducted 0.7 time per day. We were also able to confirm that the participating elderly people were habitually using these devices.

2.2 Community Activation Policy

In 2013, we conducted another filed trial with 40 participants at a temporary housing site in Asuto-nagamachi, Sendai city, Miyagi prefecture. We set the following three targets as core objectives of the trial. Firstly, creation of communities secondly, encouragement of mutual help, and thirdly, encouraging elderly people to behave as in our Nara experiment (**Fig. 2**).

The targeted temporary housing community consisted of residents that had moved from various areas and sometimes had difficulties in their mutual understanding. We focused on creating community cohesion, including conversation medi-
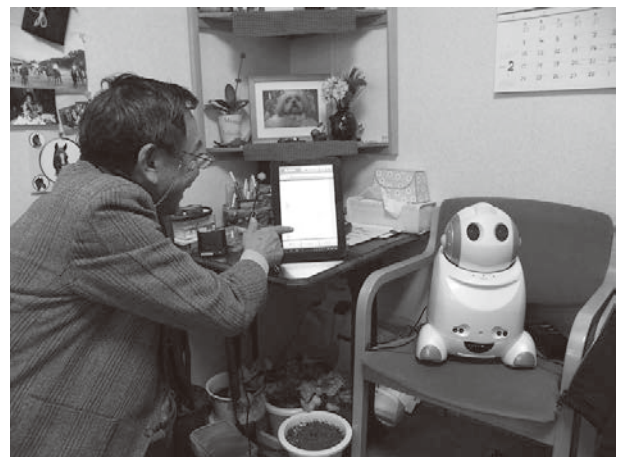

Photo 1 A user operating his tablet.

ation which had not been achieved to our satisfaction in the Field Trials in Nara exercise.

We prepared an application called "Digital Lounge" targeting an SNS style community via internet social networking to avoid difficulties occurs in the face-to-face mediation of the interactive voice system. We employed tablets and smartphones as a communication device, which have been spreading rapidly in recent years.

PaPeRo participates in the community and initiates conversation by providing every day topics. The user responds to it by simply pushing the prepared button, by typing a text comment or by handwriting on the monitor. We made the system elderly-friendly so that a user might easily make a response (**Photo 1**).

The PaPeRo submits a particular topic to a chosen group of people in order to influence communication among them. In this way we almost doubled the communication volume among users. Referring to the submitted comments data, the

robot introduces a potential friend to a user by finding a person with similar interests. Consequently, there was an almost three fold increase in the number of pairs of people registered as friends. We thereby witnessed a certain successful outcome in the degree of communication enhancement.[3]

3. Research Activities per Different Issues

3.1 Research of Issues Regarding the Lives of Elderly People

When we started these Field Trials, we were not sure if the issues defined for the filed trial described in Section 2 were most suitable for the chosen subjects. All members of the project research team were young and none of us was currently living with his parents or grandparents. In fact, we were inexperienced in the everyday conditions of elderly people's lives. We therefore conducted the exercises described below in order to define suitable subjects for our trial.

We conducted literature searches and questionnaires (quantitative surveys). Firstly we defined their trends and behaviors via the survey results, we could set the target "creation of local communities where elderly people can live actively by supporting each other" and could also approach the target by "encouraging elderly people to participate in community activities, where they might experience healthy activities and discover motivations to enjoy life." But we were still wide of defining tangible subjects and solutions due to a continuing lack of relevant information and experience.

Roughly speaking, there are two methods of carrying out a social survey. One is the "quantitative survey" that is conducted by collecting answers to questionnaires, and the other is by a "Qualitative Survey" that is conducted by interviewing and observing objects in order to obtain a specific outcome. We then conducted a Qualitative Survey as the next step by hearing from people that were related to the issues.

As to the health issues, we collected information via interviews with medical experts. Almost all of them told us that the prevention of "lifestyle diseases" is the key to elderly people's health and that the simplest and easiest solution is "walking." This advice led us to utilize the "pedometer" in our first Field Trials in encouraging elderly people to "get out and about," which represents the fundamental solution function.

We understood through the opinions of participants in the 2010 Field Trials that many people are very much concerned about their blood pressure as a health issue. Medical experts informed us that the collection of daily data is important, in addition to regular clinical health checks. As a result, we added a blood pressure meter and weighing scales in the 2011 Field Trials and adopted a scheme for encouraging people to use these devices on a daily basis.

As to community issues, we needed to know the actual status of residents' associations, elderly people's clubs and of NPOs that support the aged in Nara prefecture by enquiring about issues that concern local elderly people.

By using interviews, we often heard the words "keeping an eye on the aged" as a key issue. However, we noticed the fact that this was the view of "people who wanted to have an eye kept on the aged." "The aged that are supposed to have an eye kept on them" did not need it so much. We understood from both groups that it is important to have close neighborhood relationships before implementing Information and Communications Technology (ICT), such as sensors, etc.

3.2 Qualitative Survey in Tohoku

The Great East Japan Earthquake occurred immediately after the completion of our second Field Trials at Uda city. Following the disaster, our company had commenced across-the-border activities in search of suitable remedial solutions to the issues raised. We were asked for our opinions and ideas based on the results of our trial in Uda city. As a part of these activities, we visited Kamaishi city and Otsuchi town, Iwate prefecture, accompanied by our colleagues from the NEC Tohoku branch and we were able to hear opinions of the officers of the municipality about issues that faced them. Our visit was in November, more than six months after the earthquake. Even then, what they needed mainly was a helping hand rather than ICT. The actual situation that prevailed in the area was far from our assumptions conferred from Tokyo or from our experiences obtained in the Nara experiment. We could now see how important it was to learn directly from the people concerned.

Consequently, we chose Tohoku as the target area for our research activities and decided to conduct our 2013 Field Trials there by focusing on Qualitative Surveys as our tool of choice. This was because we thought that some issues that had not yet surfaced in other areas might be now emerging in the disaster stricken areas.

With the assistance of NEC's Revival Support Promotion Office and NEC Net Innovations, Ltd., based in Sendai, we visited some of the local municipalities, social welfare councils, and tourism associations etc. of the disaster stricken areas of Miyagi prefecture. At these meetings, we introduced our conclusions drawn from our Nara experiments and invited opinions. We also met with a graduate of NEC Social Venture Incubation Program working in Minamisanriku town via an introduction by NEC's CSR Promotion and Social Contributions Office. Thanks to his help, we were able to visit Minamisanriku town and talk directly to the local residents and to their supporters there.

We visited Minamisanriku town five times with a team of two or three researchers, (for a total of 33 person-days) and we interviewed many people there, including disaster victims living in temporary housing, people engaged in the fishing industry and so on. Through such interviews, we began to under-

stand the situation of their daily lives. Moreover, at the same time we recognized some of the pressing social issues, such as troubles of emerging community at the temporary housing site. These included rifts among the temporary housing site occupants, difficulties between the temporary housing sites and the surrounding areas and sentiments that were held historically towards the people of other local communities.

In addition to our primary research assignment, we participated in a volunteer activity called the "TOMONI project" sponsored by NEC at Minamisanriku town. We helped local people at a "Fukkou-Ichi (Market for Revival with Happiness)" that was held monthly by shop keepers of Minamisanriku town as part of their reconstruction activities. We understood via this contact with local people about what they were thinking and of what they were in need of.

As a result of these various activities we learned about the actual situation of people's lives in the Tohoku disaster stricken areas. After looking into various conditions, we finally decided to locate our experiment at a temporary housing site of Asuto-naga machi, Sendai city. This temporary housing site had people from various areas and in need of a kind of community creation means which might confirm our hypothesis about the potential issues of disaster stricken areas. As to the details of our Field Trials, these were decided based on the plan prepared by us in cooperation with the chairman of the resident's association and other concerned parties.

3.3 Activities for Improved Research Skills

Literature research and quantitative surveys are familiar tools of technological researchers. However, Qualitative Surveys aimed at defining research subjects and discovering clues regarding issues that require solutions were new to us.

We considered various Qualitative Survey methods, including interviewing skills and observation of behavior so that we might efficiently implement our interviews both with the elderly and with their support. We also attempted "simulated elderly people experiences" aiming at a better understanding of elderly peoples' behavior at our interviews and observations.

In the simulated elderly peoples' experiences, we wore special devices such as goggles that gave us limited eye sight, earplugs to impair our hearing ability and also equipment such as weights to suppress free movement of our arms and legs. The strategy to have such experience by researchers themselves was a part of our experimental approach program. It thereby aimed to observe society through the experience of elderly people by deliberately deteriorating mobility and sensory functions in order to define issues and pinpoint clues to their solution.

We prepared a special 6-hour program in cooperation with NEC Design & Promotion Ltd. Under the supervision of a qualified professional who was experienced in simulating expe-

Photo 2 A scene from an elderly people experience simulation.

riences of elderly people. Together we performed everyday life activities such as operating computers and cell phones, eating, shopping, and using public transportation etc. (**Photo 2**). The feelings that we experienced in this program helped us also to create better user interface designs etc.

4. Conclusion

In this project we targeted the "creation of local communities where elderly people are living actively and are supporting each other." We also attempted approaches for the fulfillment of ICT services by iteratively implementing Qualitative Surveys to discover issues and conducting Field Trials as proof of successful solutions for the issues.

Throughout the project, we retained our research attitude of being involved in the actual user situation and location. As a result of our trials, we were able to hear not only pleasing comments and positive opinions but also a lot of complaints and negative opinions.

However, we consider that assimilating issues from these actual opinions and steadily responding to them made it possible from the outcome of our trials to propose a system that elderly people might use habitually; inexperienced in ICT use as they might be. We intend to continue our research activities with the aim of creating social values by focusing on Qualitative Surveys and Field Trials as proof of the success of our solutions.

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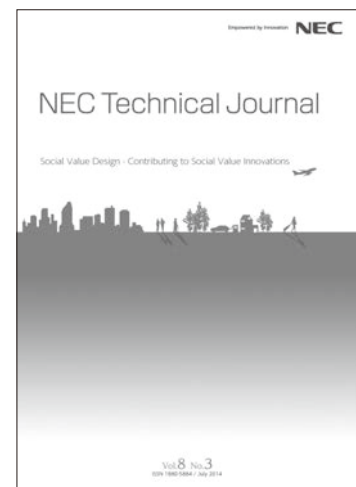
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